

# ***THE SCIENTIFIC STUDY OF ADOLESCENT DEVELOPMENT***

## ***Past, Present, and Future***

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In the opening sentence of the preface to the first edition of his classic *A History of Experimental Psychology*, Edwin G. Boring (1929) reminded readers that “psychology has a long past, but only a short history” (p. ix), a remark he attributed to the pioneer of memory research, Hermann Ebbinghaus. A similar statement may be made about the study of adolescents and their development.

The first use of the term *adolescence* appeared in the 15th century. The term was a derivative of the Latin word *adolescere*, which means to grow up or to grow into maturity (Muuss, 1990). However, more than 1,500 years before this first explicit use of the term both Plato and Aristotle proposed sequential demarcations of the life span, and Aristotle in particular proposed stages of life that are not too dissimilar from sequences that might be included in contemporary models of youth development. He described three successive, 7-year periods (infancy, boyhood, and young manhood) prior to the person’s attainment of full, adult maturity. About 2,000 years elapsed between these initial philosophical discussions of adolescence and the emergence, within the 20th century, of the scientific study of the second decade of life.

The history of the scientific study of adolescence has had two overlapping phases and is, we believe, on the cusp of a third. The first phase, which lasted about 70 years, was characterized by three sorts of Cartesian splits (see Overton, 1998) that created false dichotomies that in turn limited the intellectual development of the field. With respect to the first of these polarizations, “grand” models of adolescence that purportedly pertained to all facets of behavior and development predominated (e.g., Erikson, 1959, 1968; Hall, 1904), but these theories were limited because they were either largely all nature (e.g., genetic or maturational; e.g., Freud, 1969; Hall, 1904) or all nurture (e.g., McCandless, 1961). Second, the major empirical studies of adolescence during this period were not primarily theory-driven, hypothesis-testing investigations but were atheoretical, descriptive studies; as such, theory and research were split into separate enterprises (McCandless, 1970). Third, there was a split between scholars whose work was focused on basic developmental processes and practitioners whose focus was on community-based efforts to facilitate the healthy development of adolescents.

The second phase in the scientific study of adolescence arose in the early- to mid-1970s as developmental scientists began to make use of research on adolescents in elu-

cidating developmental issues of interest across the entire life span (Petersen, 1988). At the beginning of the 1970s, the study of adolescence, like the comedian Rodney Dangerfield, “got no respect.” Gradually, however, research on adolescent development began to emerge as a dominant force in developmental science. By the end of the 1970s the study of adolescence had finally come of age.

To help place this turning point in the context of the actual lives of the scientists involved in these events, it may be useful to note that the professional careers of the editors of this Handbook began just as this transition was beginning to take place. Across our own professional lifetimes, then, the editors of this volume have witnessed a sea change in scholarly regard for the study of adolescent development. Among those scholars whose own careers have begun more recently, the magnitude of this transformation is probably hard to grasp. To those of us with gray hair, however, the change has been nothing short of astounding. At the beginning of our careers, adolescent development was a minor topic within developmental science, one that was of a level of importance to merit only the publication of an occasional research article within prime developmental journals or minimal representation on the program of major scientific meetings. Now, three decades later, the study of adolescent development is a distinct and major field within developmental science, one that plays a central role in informing, and, through vibrant collaborations with scholars having other scientific specialties, being informed by, other areas of focus.

The emergence of this second phase of the study of adolescence was predicated in part on theoretical interest in healing the Cartesian splits (Overton, 1998) characteristic of the first phase and, as such, in exploring and elaborating developmental models that reject reductionist biological or environmental accounts of development and instead focus on the fused levels of organization constituting the developmental system and its multilayered context (e.g., Sameroff, 1983; Thelen & Smith, 1998). These developmental systems models have provided a metatheory for adolescent developmental research and have been associated with more midlevel (as opposed to grand) theories—models that have been generated to account for person-environment relations within selected domains of development.

Instances of such midlevel developmental systems theories are the stage-environment fit model used to understand achievement in classroom settings (Eccles, Wigfield, & Byrnes, 2003), the goodness of fit model used to understand the relation of temperamental individuality in peer and family relations (Lerner, Anderson, Balsano, Dowling, & Bobek, 2003), and models linking the developmental assets of youth and communities in order to understand positive youth development (Benson, 1997; Damon, 1997). For instance, Damon (1997; Damon & Gregory, 2003) forwarded a new vision and vocabulary about adolescents that was based on their strengths and potential for positive development. Damon explained that such potential could be instantiated by building new youth-community relationships predicated on the creation of *youth charters*, agreements that codified community-specific visions and action agendas for promoting positive life experiences for adolescents.

Generally speaking, the study of adolescence in its second phase was characterized by an interest in developmental plasticity, in diversity, and in the application of science to real-world problems. This phase also was marked by the development and use of

more nuanced and powerful developmental methods aimed at providing sensitivity to the collection and analysis of longitudinal data pertinent to the multiple levels.

More than a quarter century ago, Bronfenbrenner (1974) explained the importance of a science of development that involved the full and bidirectional collaboration between the producers and consumers of scientific knowledge. In turn, D. A. Hamburg (1992; D. A. Hamburg & Takanishi, 1996) proposed that the quality of life of adolescents, and their future contributions to civil society, could be enhanced through collaboration among scholars, policy makers, and key social institutions, for instance, community-based youth-serving organizations (e.g., 4-H, Boys and Girls Clubs, scouting), schools, and the media. In our view, D. A. Hamburg's (1992; D. A. Hamburg & Takanishi, 1996) vision has been actualized. We are now at the cusp of the emergence of a third phase in the history of the scientific study of adolescence, one that we hope will be marked by the publication of this Handbook. This phase involves the emergence of the field of adolescent development as an exemplar of the sort of developmental science that can be used by policy makers and practitioners in order to advance civil society and promote positive development (Lerner, Fisher, & Weinberg, 2000). The contributors to this volume provide much evidence that the field of adolescence may be entering a phase of its development wherein such a scientist–policy maker–practitioner collaboration may be a central, organizing frame.

## THE FIRST PHASE OF THE SCIENTIFIC STUDY OF ADOLESCENCE

In 1904 G. Stanley Hall, with the publication of his two-volume work *Adolescence*, initiated the scientific study of adolescence. He launched the field as one steeped in a split and nativist view of development, one that was and linked to a biologically based, deficit view of adolescence.

Fancying himself as the “Darwin of the mind” (White, 1968), Hall sought to translate the ideas of Ernst Haeckel (e.g., 1868, 1891), an early contributor to embryology, into a theory of life span human development. Haeckel advanced the idea of recapitulation: The adult stages of the ancestors comprising a species' evolutionary (phylogenetic) history were repeated in compressed form as the embryonic stages of the organism's ontogeny. Hall extended Haeckel's idea of recapitulation beyond the prenatal period in order to fashion a theory of human behavioral development. To Hall, adolescence represented a phylogenetic period when human ancestors went from being beastlike to being civilized. Hall (1904) saw adolescence as a period of storm and stress, as a time of universal and inevitable upheaval.

Although other scholars of this period (e.g., Thorndike, 1904) quickly rejected Hall's recapitulationism on both empirical and methodological grounds (e.g., see Lerner, 2002, for a discussion), other theorists of adolescent development used a conceptual lens comparable to Hall's, at least insofar as his biological reductionism and his deficit view of adolescence were concerned. Anna Freud (1969), for instance, saw adolescence as a biologically based and universal developmental disturbance. Erik Erikson (1950, 1959) viewed the period as one in which an inherited maturational ground plan resulted in the inescapable psychosocial crisis of identity versus role confusion. Even when the-

orists rejected the nature-based ideas of psychoanalysts or neopsychoanalysts, they proposed nurture-oriented ideas to explain the same problems of developmental disturbance and crisis. For example, McCandless (1961, 1970) presented a social-learning, drive-reduction theory to account for the developmental phenomena of adolescence (e.g., regarding sex differences in identity development) that Erikson (1959) interpreted as being associated with maturation (see Lerner & Spanier, 1980, for a discussion).

Although the developmental theory of cognition proposed by Piaget (1960, 1969, 1970, 1972) involved a more integrative view of nature and nurture than did these other models, the predominant focus of his ideas was on the emergence of formal logical structures and not on the adolescent period per se. The absence of concern in Piaget's theory with the broader array of biological, emotional, personality, social, and societal concerns that had engaged other theorists' discussions of adolescence did not stop a relatively minor and historically transitory interest in Piaget's ideas as a frame for empirical understanding of the adolescent period (Steinberg & Morris, 2001). However, as Steinberg and Morris explained, only a short while after this period of heightened interest in using the onset of formal operations as an explanation for everything adolescent, the influence of Piaget's theory on mainstream empirical work in the study of adolescence would become as modest as that associated with the other grand theories of the period, such as those authored by Erikson or McCandless.

The divergence between the so-called grand theories of the adolescent period and the range of research about adolescence that would come to characterize the field at the end of the 20th century actually existed for much of the first phase of the field's development. The classic studies of adolescence conducted between 1950 and 1980 were not investigations derived from the theories of Hall, Anna Freud, McCandless, Piaget, or even Erikson (work associated with the ideas of Marcia, 1980, notwithstanding). Instead, this research was directed to describing (note, not *explaining*; McCandless, 1970; Petersen, 1988) patterns of covariation among pubertal timing, personal adjustment, and relationships with peers and parents (e.g., Jones & Bayley, 1950; Mussen & Jones, 1957), both within and across cultural settings (e.g., Mussen & Bouterline Young, 1964); the diversity in trajectories of psychological development across adolescence (e.g., Bandura, 1964; Block, 1971; Douvan & Adelson, 1966; Offer, 1969); and the influence of history or temporality (i.e., as operationalized by time of testing- or cohort-related variation) on personality development, achievement, and family relations (e.g., Elder, 1974; Nesselroade & Baltes, 1974). Petersen (1988, p. 584) described the quality of the classic empirical work on adolescence by noting that most "research fell into one of two categories: (a) studies on behavioral or psychological processes that happened to use adolescent subjects, or (b) descriptive accounts of particular groups of adolescents, such as high school students or delinquents."

Despite its separation from the grand theories of adolescence that dominated the field during its first phase of scientific development, this body of early research, as well as the subsequent scholarship it elicited (e.g., see reviews by Lerner & Galambos, 1998; Petersen, 1988; Steinberg & Morris, 2001), made several important contributions to shaping the specific character of the scientific study of adolescence between the early-1980s and late-1990s. As elaborated later, this character involved the longitudinal study of individual-context relations among diverse groups of youth and the use of such scholarship for purposes of both elucidating basic developmental processes and apply-

ing developmental science to promote positive youth development (B. Hamburg, 1974; Lerner, 2002).

These contributions also advanced the study of adolescence because scholarship about the second decade of life acted synergistically with broader scholarly activity within developmental science pertinent to the theoretical, methodological, and applied features of the study of human development across the life span. For instance, a classic paper by B. Hamburg (1974) did much to provide the foundation for this integration, in that it made a compelling case for viewing the early adolescent period as a distinct period of the life course and one that provided an exemplary ontogenetic window for understanding key person-context processes involved in coping and adaptation. Based on such evidence, Petersen (1988, p. 584) noted,

Basic theoretical and empirical advances in several areas have permitted the advance of research on adolescence. Some areas of behavioral science from which adolescence researchers have drawn are life-span developmental psychology, life-course sociology, social support, stress and coping, and cognitive development; important contributing areas in the biomedical sciences include endocrinology and adolescent medicine. The recent maturation to adolescence of subjects in major longitudinal studies . . . has also contributed to the topic's empirical knowledge base.

The emergence of the relationship between the specific study of adolescence and more general scholarship about the overall course of human development provided the bridge to the second phase in the study of adolescent development. Indeed, about a decade after this second phase had begun, Petersen (1988, p. 601) predicted, "Current research on adolescence will not only aid scientific understanding of this particular phase of life, it also may illuminate development more generally." Future events were consistent with Petersen's prognostication.

## THE SECOND PHASE OF THE SCIENTIFIC STUDY OF ADOLESCENCE

From the late 1970s through this writing the adolescent period has come to be regarded as an ideal *natural ontogenetic laboratory* for studying key theoretical and methodological issues in developmental science (Lerner, 2002; Steinberg & Morris, 2001). There are several reasons for the special salience of the study of adolescent development to understanding the broader course of life span development. First, although the prenatal and infant period exceeds adolescence as an ontogenetic stage of rapid physical and physiological growth, the years from approximately 10 to 20 not only include the considerable physical and physiological changes associated with puberty but also mark a time when the interdependency of biology and context in human development is readily apparent (Susman & Rogol, this volume). Second, as compared to infants, the cognizing, goal-setting, and relatively autonomous adolescent can, through reciprocal relations with his or her ecology, serve as an active influence on his or her own development, and the study of adolescence can inform these sorts of processes more generally (Lerner, 2002). Third, the multiple individual and contextual transitions into, throughout, and out of this period, involving the major institutions of society (family, peers,

schools, and the workplace), engage scholars interested in broader as well as individual levels of organization and also provide a rich opportunity for understanding the nature of multilevel systemic change. Finally, there was also a practical reason for the growing importance of adolescence in the broader field of developmental science: As noted by Steinberg and Morris (2001), the longitudinal samples of many developmental scientists who had been studying infancy or childhood had aged into adolescence. Applied developmental scientists were also drawn to the study of adolescents, not just because of the historically unprecedented sets of challenges to the healthy development of adolescents that arose during the latter decades of the 20th century (Dryfoos, 1990; Lerner, 1995) but also because interest in age groups other than adolescents nevertheless frequently involved this age group (e.g., interest in infants often entailed the study of teenage mothers, and interest in middle and old age frequently entailed the study of the “middle generation squeeze,” wherein the adult children of aged parents cared for their own parents while simultaneously raising their own adolescent children).

### **The Emerging Structure of the Field of Adolescent Development**

This scholarly activity at the close of the 1970s was both a product and a producer of a burgeoning network of scholars from multiple disciplines. In 1981 the late Herschel Thornburg launched a series of biennial meetings (called the Conference on Adolescent Research) at the University of Arizona. During these meetings (which occurred also in 1983 and 1985), the idea for a new scholarly society, the Society for Research on Adolescence (SRA), was born. The first meeting of SRA was held in Madison, Wisconsin, in 1986, and Thornburg was elected the first president of the organization. Across the next two decades, with biennial conventions in Alexandria, Virginia (1988), Atlanta (1990), Washington (1992), San Diego (1994), Boston (1996), again in San Diego (1998), Chicago (2000), New Orleans (2002), and Baltimore (2004), and through the leadership of the SRA presidents who succeeded Thornburg—John P. Hill, Anne C. Petersen, E. Mavis Hetherington, Sanford M. Dornbusch, Jeanne Brooks-Gunn, Stuart T. Hauser, Laurence Steinberg, W. Andrew Collins, Jacquelynne Eccles, and Elizabeth Susman—the organization and the field it represented flourished. Between 1986 and 2002, attendance at SRA biennial meetings more than quadrupled. The SRA launched its own scholarly journal in 1991, the *Journal of Research on Adolescence* (Lerner, 1991); grew from approximately 400 members in 1986 to more than 1,200 members in 2002; and attracted disciplinary representation from scholars and practitioners with expertise in psychology, sociology, education, family studies, social work, medicine, psychiatry, criminology, and nursing.

Impetus to this growth in scholarly interest in the study of adolescence also was stimulated by the publication in 1980 of the first handbook for the field. Edited by Joseph Adelson (1980), the *Handbook of Adolescent Psychology* was published as part of the Wiley series on personality processes. The volume reflected the emerging multidisciplinary interest in the field (with chapters discussing levels of organization ranging from biology through history, including an interesting historical chapter on youth movements), the growing interest in systems models of adolescent development (e.g., in the chapters by Elder, 1980, and by Petersen & Taylor, 1980), the importance of longitudi-

nal methodology (Livson & Peskin, 1980), and the increasing interest in diversity (i.e., there was a five-chapter section titled “Variations in Adolescence”). It is important to note that through several chapters pertinent to the problems of adolescence there was still ample representation in the volume of the deficit view of adolescence. Nevertheless, the 1980 Handbook included information pertinent to normative development and developmental plasticity, and several chapters discussed the positive individual and social features of youth development.

The publication of a handbook, the organization of a successful scholarly society, and the initiation of that society’s scholarly journal all underscored the growing interest in and the scientific maturity of research on adolescent development. This intellectual milieu and the scholarly opportunities it provided attracted a broad range of scholars to the field, some for reasons that had little to do with adolescence per se, but others because they came to see themselves as experts on the second decade of life. By the mid-1980s a growing cadre of scientists would identify themselves as adolescent developmentalists.

### **The Study of Adolescence as a Sample Case for Understanding Plasticity and Diversity in Development**

Scholars interested primarily in the instantiation of developmental processes within other periods of the life span (e.g., infancy, Easterbrooks & Graham, 1999; adult development and aging, Brim, 1966; Nesselroade & Baltes, 1974) or in disciplines other than developmental psychology (e.g., life course sociology; Burton, 1990; Elder, 1974, 1980) became adolescent developmentalists as well. This attraction inheres in the window that the period provides to understanding how development at any point across the life span involves the relations of diverse and active individuals and diverse, active, and multitiered ecologies (Bronfenbrenner, 1979; Bronfenbrenner & Morris, 1998; Lerner, 2002).

As suggested by Steinberg and Morris (2001), the scientific concern that arguably was most significant in transforming the field of adolescent development beyond a focus on this single developmental period into an exemplar for understanding the breadth of the human life span was the emerging focus within developmental science on the ecology of human development (e.g., Bronfenbrenner, 1979, 2001; Bronfenbrenner & Morris, 1998). The integrated designed and natural ecology was of interest because its study was regarded as holding the key to (a) understanding the system of relations between individuals and contexts that is at the core of the study of human development and (b) providing evidence that theories about the character of interacting developmental system (e.g., Collins, Maccoby, Steinberg, Hetherington, & Bornstein, 2000; Gottlieb, 1997, 1998; Horowitz, 2000; Thelen & Smith, 1998) are more useful in accounting for the variance in human ontogeny than are theories whose grounding is either exclusively in nature (e.g., behavioral genetic or sociobiological; e.g., Plomin, 2000; Rowe, 1994; Rushton, 2000) or exclusively in nurture (e.g., social learning or functional analysis; Gewirtz & Stingle, 1968; McCandless, 1970).

A second set of broader issues that engaged developmental science in the study of adolescence pertained to understanding the bases, parameters, and limits of the plas-

ticity of human development. As implied earlier, this plasticity legitimated an optimistic view about the potential for interventions into the course of life to enhance human development, encouraged growth in scientific activity in the application of developmental science to improve life outcomes, and gave impetus to the idea that positive development could be promoted among all people (Lerner, Fisher, & Weinberg, 2000). Moreover, plasticity meant that the particular instances of human development found within a given sample or period of time were not necessarily representative of the diversity of development that might potentially be observed under different conditions.

Third, developmentalists pursuing an interest in the developmental system and the plasticity in ontogenetic change that it promoted recognized the need to develop and deploy methods that could simultaneously study changes in (at least a subset of) the multiple levels of organization involved in the development of diverse individuals and contexts. Accordingly, multivariate longitudinal designs were promoted as key to the study of the relatively plastic developmental system, as were the development of empirical tools, such as change-sensitive measures, sophisticated data analysis techniques, and strategies such as triangulation of observations within and across both quantitative and qualitative domains of inquiry.

### **Defining Features of the Study of Adolescence During Its Second Phase**

Four defining features of the second phase of the science of adolescent development are worth noting. First, during its second phase of life, the empirical study of adolescence emerged as a *relational* field of inquiry. That is, it became an area of scholarship in which implicitly (e.g., Block, 1971; Mussen & Bouterline-Young, 1964) or, at times, explicitly (e.g., Nesselroade & Baltes, 1974) the key unit of analysis in understanding the development of the person was his or her relation with both more molecular (e.g., biological) and more molar (social group, cultural, and historical) levels of organization (Overton, 1998). In such a relational frame, no one level of organization was seen as the prime mover of development.

A second distinctive feature of the field of adolescence within this second phase derived from its relational character. The confluence of the multiple levels of organization involved in the developmental system provides the structural and functional bases of plasticity and of the inevitable and substantively significant emergence of systematic individual differences; that is, such individuality serves as a key basis of the person's ability to act as an agent in his or her own development (Brandtstädter, 1998; Lerner, 2002). Accordingly, the field of adolescence has become the exemplar within the broader study of human development for the substantive study of diversity and for the person-centered approach to research on human development (Magnusson, 1999a, 1999b; Magnusson & Stattin, 1998).

Third, although there remains a focus within the contemporary adolescent literature on problems of this developmental period (Steinberg & Morris, 2001), the focus on plasticity, diversity of development and people, and individual agency—and thus the strength or capacity of an adolescent to influence his or her development for better or for worse—means that problematic outcomes of adolescent development are now just one of a larger array of outcomes that may characterize the relatively plastic relations between adolescents and their contexts (e.g., B. Hamburg, 1974; D. A. Hamburg, 1992).

Indeed, this plasticity provides the theoretical basis of the view that all young people possess strengths, or, more simply, the potential for positive development (Damon, 1997; Damon & Gregory, 2003).

The idea that the adolescent period provides the ideal time within life to study the bases of positive human development frames what has become a fourth defining feature of the field. The study of adolescent development is now characterized by a synthetic interest in basic and applied concerns about youth development. One's basic understanding of how relational processes within the developmental system provide a basis for diverse developmental trajectories across adolescence can be tested by assessing whether changes in individual and ecological variables within the system combine to actualize the strengths of youth. Benson (1990, 1997; Benson, Mannes, Pittman, & Ferber, this volume) termed these individual and ecological variables *developmental assets*. Such tests of developmental theory, when implemented within the actual ecology of human development, are interventions into the course of adolescent development. Depending on their target level of organization, these actions constitute policies or programs, and in this context basic research in adolescence is also applied developmental science (Bronfenbrenner & Morris, 1998; Lerner, 2002). As a consequence of this trend, the field has come to place a premium on community-based, change-oriented methods, both to study development and to evaluate the efficacy of programs and policies designed to alter the course of adolescent life for the better.

## **CONCLUSIONS: ADOLESCENCE AS A FIELD OF SCIENTIST–PRACTITIONER–POLICY MAKER COLLABORATION**

The chapters in this Handbook both reflect and extend the emphases on individual-context relations, developmental systems, plasticity, diversity, longitudinal methodology, and application that were crystallized and integrated within the second phase of the development of the scientific study of adolescence. As evident within each of the chapters in this Handbook, and as underscored in both the foreword and the afterword to the volume, the study of adolescence today represents the exemplar within developmental science wherein excellent conceptual and empirical work is undertaken with a collaborative orientation to making a contribution both to scholarship and to society. Arguably more so than in scholarship pertinent to other periods across the life span, within the study of adolescence the vision of Bronfenbrenner (1974) and D. A. Hamburg (1992; D. A. Hamburg & Takanishi, 1996) of a developmental science involving reciprocal collaborations among researchers, practitioners, and policy makers is being actively pursued, if not yet completely realized.

The future of civil society in the world rests on the young. Adolescents represent at any point in history the generational cohort that must next be prepared to assume the quality of leadership of self, family, community, and society that will maintain and improve human life. Scientists have a vital role to play to make in enhancing, through the generation of basic and applied knowledge, the probability that adolescents will become fully engaged citizens who are capable of, and committed to, making these contributions. The chapters in this Handbook demonstrate that high-quality scientific work on adolescence is in fact being generated at levels of study ranging from the bio-

logical through the historical and sociocultural. Above all, this volume demonstrates that the study of adolescent development at its best both informs and is informed by the concerns of communities, practitioners, and policy makers. It is our hope that we have assembled the best information possible to be used to promote and advocate for the healthy and positive development of young people everywhere.

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